REMARKS

The office action mailed February 14, 2006 has been carefully reviewed and these remarks are responsive thereto. Claims 1-22 are pending and stand rejected. Applicant herein amends claims 2, 4, 7, 8, 11, 17, 18 and 21. Claims 1, 3 and 22 are canceled. New claims 23-25 are added. No new matter is introduced.

On May 5, 2006, Applicant submitted a supplemental information disclosure statement to cite art from a recent office action in related application 10/662,398. A copy of the office action from the '398 application was also submitted.

Claim 4 is herein amended to be independent, and to generally include the features of original claims 1 and 3 (from which claim 4 originally depended). The phrase "without attempting to determine a force" in original claim 1 has been changed to "without quantifying a force," and the phrase "configured to determine force exerted" in original claim 3 has been changed to "configured to quantify force exerted." The office action rejected claim 3 under 35 U.S.C. § 103 based on U.S. Patent 5,675,329 (Barker et al., herein after "Barker") in view of U.S. Patent 5,349,873 (Omura et al., hereinafter Omura). At the outset, combining Barker and Omura is improper. The office action has provided no motivation for a person of ordinary skill in the art to have combined the teachings of these two references. The office action merely asserts:

> It would have been obvious to one with ordinary skills in the art at the time the invention was made to replace the force detection circuit as taught of Barker with the force detection circuit including a voltage divider as taught by Omura, in order to measure the force through the circuitry (see Omura: column 9, line 28).

Office Action at page 9. Barker already teaches measuring of force exerted on a keyboard (see, e.g., block 12 in Fig. 1). The office action offers no explanation why a person of ordinary skill would have wanted to replace the force measuring circuitry of Barker with the circuitry of Omura. Moreover, the office action has not provided any reasoning to support its implicit conclusion that Barker and Omura are from analogous arts. Applicant respectfully submits that Barker and Omura are from non-analogous arts. Barker relates to measuring of force on a

QWERTY keyboard. Omura, however, relates to force transducers that are usable under the severe operating conditions found in an engine cylinder. See, e.g., Omura col. 1, lines 28-26.

Even if it were appropriate to combine teachings from Barker and Omura, the combination fails to teach or suggest all features of claim 4. Claim 4 recites the force detection circuit as including a microprocessor and a voltage divider. Claim 4 further recites that the microprocessor is configured to place the voltage divider in a first condition when scanning each key of the plurality to determine if a scanned key is in a pressed condition and in a second condition when quantifying the force exerted by a user on a key determined to be in a pressed condition. The office action asserts:

> As for claim 4, Barker teaches of the computer keyboard (11) of claim 3, wherein: the force detection circuit (12) comprises a microprocessor (18) and of a first condition when scanning each key of the plurality to determine if a scanned key is in a pressed condition and in a second condition when quantifying the force exerted by a user on a key determined to be in a pressed condition in column 4, lines 10-25.

Office Action at page 9. Applicant respectfully submits that the office action has misread claim 4. Specifically, claim 4 does not recite "a first condition when scanning each key of the plurality to determine if a scanned key is in a pressed condition" or "a second condition when quantifying the force exerted by a user on a key determined to be in a pressed condition." Claim 4 clearly recites the microprocessor is configured to place the voltage divider in a first condition and in a second condition. Even if the voltage divider circuit of Omura could have been incorporated into the system of Barker, there is still no teaching of a first condition for that voltage divider when scanning for pressed keys and a second condition when quantifying force on a pressed key.

For at least the reasons set forth above, claim 4 is allowable. Claims 2, 5 and 6 depend from claim 4 and are allowable for at least the same reasons as claim 4, and further in view of additional recited features.

Claim 7 is herein amended to be independent, and to generally include the limitations of original claims 1 and 3 (from which claim 7 originally depended). The phrase "without attempting to determine a force" in original claim 1 has been changed to "without quantifying a force," and the phrase "configured to determine force exerted" in original claim 3 has been

changed to "configured to quantify force exerted." The office action rejected claim 7 under 35 U.S.C. § 102(b) based on Barker. Claim 7 recites that the detection circuit comprises a microprocessor and a RC network. The office action asserts at page 4 that "Barker teaches of the computer keyboard (11) of claim 3, wherein the detection circuit comprises a microprocessor (18) and a RC network in column 2, lines 58-61." Barker does not make any reference to an RC network. Although Barker does state at col. 2, lines 55-57 that "[f]orce sensing device 12 may be employed using piezo and foil strain gauges, optical, magnetic and capacitive technologies[,]" this is not the same as describing (or even suggesting) an RC network. Notably, the next sentence of Barker states that "[i]n the preferred embodiment, force sensing device 12 comprises a force sensing resistor, wherein the resistance of the force sensing resistor changes as a function of pressure load placed on it..." In other words, Barker is advocating use of a force sensing resistor instead of "capacitive technologies."

Because all features of claim 7 are not taught, claim 7 is allowable.

Claim 8 has been amended for clarification purposes. Specifically, the phrase "located between the first and second group conductor" has been changed to "located between one of the conductors of the first group and one of the conductors of the second group." The office action also rejected independent claim 8 and its dependent claims 9-11 and 13-16 under 35 U.S.C. § 102(b) based on Barker. Claim 8 recites a sub-circuit connected to at least one of the second group conductors, the sub-circuit having a resistor network switchable by a microprocessor between a low resistance value and a high resistance value. The office action asserts that

> As for claim 8, Barker teaches of a computer keyboard (11), comprising
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> * * *
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> a sub-circuit connected to at least one of the second group conductors, the sub-circuit having a resistor network switchable by the microprocessor (18) between a low resistance value and a high resistance value; and an Analog to Digital Converter (ADC) coupled to the sub-circuit and to the microprocessor (18) in column 2, lines 65-20

Office Action at page 4. Applicant assumes the office action intended to refer to Barker column 2, line 65 through column 3, line 20. In any event, neither that nor any other portion of Barker teaches a resistor network switchable by a microprocessor between low and high resistance values. Although Barker column 2, line 65 through column 3, line 20 refers to comparing a

"digital representation" of a pressure to a threshold value stored within a microcontroller, this does not require (or even suggest) that a resistor network be switched between low and high resistance values.

Because all features of claim 8 are not taught, claim 8 is allowable. Claims 9-11 and 13-16 depend from claim 8 and are allowable for at least the same reasons as claim 8, and further in view of additional recited features. For example, claim 9 recites that the microprocessor is configured to ground to an individual conductor pin, test another conductor pin for a threshold voltage level while the resistor network is switched to the high resistance value, switch the resistor network to the low resistance value upon detecting the threshold voltage level on the tested conductor pin, and receive from the ADC a digital value of a voltage on the tested conductor pin while the resistor network is switched to the low resistance value. The office action merely refers to Barker column 2, lines 55-63. This portion of Barker makes no reference to any of these operations recited in claim 9. The office action then states:

> resistor network is switched to the low resistance value in column 2, lines 55-63. Barker does not go into detail of the operations of the force detection circuit, Barker does mention that various force sensing or detection devices/circuit can be used, and therefore, includes the process as described above.

Office Action at page 5 (underlining added). Essentially, the office action argues that because Barker teaches the concept of force detection and indicates it can be performed in various ways, Barker somehow teaches the specifics of implementations that Barker does not actually describe. This is logically and legally incorrect.

The office action rejected claim 12 under 35 U.S.C. § 103 based on Barker in view of Omura. Claim 12 depends from claim 8, and Omura does not teach the above described feature of claim 8 not taught by Barker. Accordingly, claim 12 is also allowable.

The office action further rejected independent claim 17 and its dependent claims 18, 19 and 21 under 35 U.S.C. § 102(b) based on Barker. Claim 17 is amended to recite a microprocessor having preprogrammed instructions for performing steps that include, upon detecting a threshold voltage level on a selected conductor pin, placing a detection circuit in a second state by altering the resistance of a resistance network. For reasons similar to those set

forth above with regard to claim 9, Barker does not teach this feature. Accordingly, claim 17 is allowable. Claims 18, 19 and 21 are allowable for at least the same reason as claim 17.

The office action rejected claim 20 under 35 U.S.C. § 103 based on Barker in view of Omura. Claim 20 depends from claim 17, and Omura does not teach the above described feature of claim 17 not taught by Barker. Accordingly, claim 20 is also allowable.

Claims 23-25 have been added to more fully claim Applicant's invention, and depend from claims 4, 7 and 17, respectively.

It is respectfully submitted that this application is in condition for allowance. Should the Examiner believe that anything further is desirable in order to place the application in even better form for allowance, the Examiner is respectfully invited to contact Applicant's undersigned representative at the below-listed number.

Respectfully submitted,

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